Transparency International
Corruption Perceptions Index 2009

Methodological Brief

Transparency International's Corruptions Perceptions Index[1] (TI-CPI) is an aggregate indicator that ranks countries in terms of the degree to which corruption is perceived to exist among public officials and politicians. It is a composite index drawing on corruption-related data by a variety of independent and reputable institutions.

The main reason for using an aggregated index of individual sources is that a combination of sources measuring the same phenomenon is more reliable than each source taken separately.

A. DATA SOURCES TO CALCULATE THE CPI

1. All sources of information used to construct the CPI are produced by reputable organisations and data gathering organisations. To be included in the CPI, a source must measure the overall extent of corruption (frequency and/or size of corrupt transactions) in the public and political sectors and provide a ranking of countries, that is to say, measure perceptions of corruption in at least a few different countries. Also, the methodology used to assess these perceptions has to be the same for all assessed countries in order for the source to be selected.
   The number of surveys/assessments included might vary from one year to another depending on their availability at the time of the development of the index.

   The CPI 2009 is calculated using data from 13 different surveys or assessments produced by the following 10 independent organisations[2]:

   1. Africa Development Bank- Country Policy and Institutional Assessments 2008 (AFDB 2008)
   2. Asian Development Bank -Country Performance Assessment Ratings 2008 (ADB 2008)
   3. Bertelsmann Foundation- Bertelsmann Transformation Index (BF 2009)
   4. Economist Intelligence Unit -Country Risk Service and Country Forecast 2009 (EIU 2009)
   5. Freedom House -Nations in Transit 2009 (FH 2009)
   6. Global Insights, formerly World Markets Research Centre- Country Risk Ratings 2009 (GI 2009)
   7. Institute for Management Development - World Competitiveness Report 2008 and 2009 (IMD 2008 and IMD 2009)
   8. Political and Economic Risk Consultancy, Hong Kong - Asian Intelligence 2008 and 2009 (PERC 2008 and PERC 2009).
   9. World Economic Forum - Global Competitiveness Report 2008 and 2009 (WEF 2008 and WEF 2009)
   10. World Bank - Country Policy and Institutional Assessments for IDA Countries (WB 2008)

   Not all sources rank all countries of the index. Because the coverage of these surveys and assessments is not identical, the number of sources from which each country's score is derived is not the same for all countries. A country must be covered by a minimum of 3 different sources to be ranked in the CPI.

   The CPI 2009 covers 180 countries, the same number as last year's edition. A slight change in country coverage resulted from individual sources adjusting their coverage. These adjustments in coverage made it possible to include Brunei Darussalam, but unfortunately also led to the exclusion of Belize, for which only one source was available this year.

[1] The CPI method was developed by Johann Lambsdorff from University of Passau for Transparency International.
[2] Please refer to Appendix 2 for more information on the organisations providing data for the CPI as well as on data collection method and timelines of data collection.

2. There are two different types of sources. The first one is business people opinion surveys. The second one is assessments (scores) of a country's performance as provided by a group of country/risk/expert analysts.

   For the CPI 2009, 6 of the 13 assessments businesspeople opinion surveys: IMD 2008 and 2009, PERC 2008 and 2009, and WEF 2008 and 2009. The remaining 7 sources are assessments provided by country experts or analysts.

3. For opinion surveys, when multiple years of the same survey are available, data for the last two years are included. The reason is that this smoothes abrupt changes.

4. For scores provided by experts, only the most recent iteration of the assessment is included. The reason is that these scores are generally peer reviewed and therefore scores do not change abruptly. Unlike opinion surveys, expert opinions are subject to, and draw heavily on, peer reviewed. Consequently, they are less prone to erratic fluctuations from one year to another than surveys. Furthermore, as the last iteration of the expert assessment presents the most updated information about the perception of prevalence of corruption in the country, so including assessment from previous years would not add any additional information.

5. Data are either donated to Transparency International by the institutions producing the data for the purpose of building this index or are available in the public domain.

B. QUESTIONS REFLECTED ON THE CPI 2009 SCORES

Among other issues, all sources intend to measure the prevalence of corruption, generally defined as the misuse of public power for private benefit. The information extracted from the sources for the purpose of building the index is limited to that specific dimension.

1. Africa Development Bank- Country Policy and Institutional Assessments 2008 (AFDB 2008)-, the Asian Development Bank -Country Performance Assessment Ratings 2008 (ADB 2008) and the World Bank - Country Policy and Institutional Assessments for IDA Countries (WB 2008): The CPI reflects the country specialists responses to the "Transparency, Accountability, and Corruption in the Public Sector" portion of the questionnaire, as described below:

   "This criterion assesses the extent to which the executive can be held accountable for its use of funds and the results of its actions by the electorate and by the legislature and judiciary, and the extent to which public employees within the executive are required to account for the use of resources, administrative decisions, and results obtained. Both levels of accountability are enhanced by transparency in decision-making, public audit institutions, access to relevant and timely information, and public and media scrutiny. A high degree of accountability and transparency discourages corruption, or the abuse of public office for private gain. National and sub-national governments should be appropriately weighted. Each of three dimensions should be rated separately: (a) the accountability of the executive to oversight institutions and of public employees for their performance; (b) access of civil society to information on public affairs; and (c) state capture by narrow vested interests." The rating scale ranges from 1 (very weak for two years or more) to 6 (very strong for three years or more) and allows for intermediate ratings (eg. 3.5).

2. Bertelsmann Foundation- Bertelsmann Transformation Index (BF 2009): the CPI uses the responses from country experts to the following two questions:

   "To what extent are there legal or political penalties for of?ceholders who abuse their positions?"
   - [10-9] As a rule, corrupt officeholders are prosecuted rigorously under established laws.
   - [8-6] As a rule, corrupt officeholders are prosecuted under established laws but also slip through political, legal or procedural loopholes.
   - [5-3] Corrupt officeholders are not prosecuted adequately under the law but occasionally attract adverse publicity.
   - [2-1] Officeholders can exploit their offices for private gain as they see fit without fear of legal consequences or adverse publicity.

   "To what extent can the government successfully contain corruption?"

- [10-9] All integrity mechanisms are reasonably effective. They are actively supported by the government.
- [8-6] Most integrity mechanisms are functioning, albeit partly with limited effectiveness. The government provides almost all integrity mechanisms.
- [5-3] Some integrity mechanisms are implemented. Often, they remain ineffective; their operation is impeded by private interests. The government's motivation and capacity to implement reforms is mixed.
- [2-1] Portions of the state are controlled by private interest groups; reform is impeded by private interests, rendering most integrity mechanisms nonexistent or ineffective.

3. Economist Intelligence Unit -Country Risk Service and Country Forecast 2009 (EIU 2009) the CPI uses its panel of experts' assessment on the incidence of corruption:

   The EIU panel of experts assess the incidence of corruption and defines corruption as the misuse of public office for personal (or party political) financial gain. Responses go from 0 (denoting a "very low" incidence of corruption) to 4 (denoting a "very high" incidence). Aspects considered include: Existence of clear procedures and accountability governing the allocation and use of public funds, public funds misappropriation by ministers/public officials for private or party political purposes; existence of special funds for which there is no accountability; general abuses of public resources; existence of a professional civil service; existence of an independent body auditing the management of the public finances; existence of an independent judiciary with the power to try ministers/public officials for abuses; and payment of bribes to secure contracts and gain favours.

4. Freedom House -Nations in Transit 2009 (FH 2009): the CPI uses its corruption score derived from the following questions to country experts:

   1. Has the government implemented executive anticorruption initiatives?
   2. Is the country's economy free of excessive state involvement?
   3. Is the government free from excessive bureaucratic regulations, registration requirements, and other controls that increase opportunities for corruption?
   4. Are there signi?cant limitations on the participation of government officials in economic life?
   5. Are there adequate laws requiring ?nancial disclosure and disallowing con?ict of interest?
   6. Does the government advertise jobs and contracts?
   7. Does the state enforce an executive legislative or administrative process— particularly one that is free of prejudice against one's political opponents— to prevent, investigate, and prosecute the corruption of government officials and civil servants?
   8. Do whistle-blowers, anticorruption activists, investigators, and journalists enjoy legal protections that make them feel secure about reporting cases of bribery and corruption?
   9. Are allegations of corruption given wide and extensive airing in the media?
   10. Does the public display a high intolerance for official corruption?

   Ratings run from 1 (highest rating) to 7 (lowest rating) and follow a quarter-point scale.

5. Global Insights, formerly World Markets Research Centre- Country Risk Ratings 2009 (GI 2009) the CPI uses its corruption rating by country experts

   The ratings assess the broad range of corruption, from petty bribe-paying to higher-level political corruption. The figures are not quantitative - they do not equate to a probability or frequency assessment. Rather they provide a qualitative ranking between the least corrupt countries (1.0) and the most corrupt (5.0). Even in the least corrupt countries there will be isolated examples of the practice. In countries at the bottom of the ranking, corruption will be endemic in almost every transaction and interaction between individuals and businesses and the state.

6. Institute for Management Development - World Competitiveness Report 2008 and 2009 (IMD 2008 and IMD 2009): the CPI uses results from the following question posed to businesspeople:

   On a scale from 1 to 6, to what extent you agree that "Bribing and corruption" exist or not in the context of the country in which you work, and have resided for the past year, based on your previous international experience.

7. Political and Economic Risk Consultancy, Hong Kong - Asian Intelligence 2008 and 2009 (PERC 2008 and PERC 2009)

   The survey asked businesspeople about the perception of political corruption in the respondent's home country. Other questions were also posed about the extent that respondents perceived corruption to hurt the overall business environment, to infect certain national institutions like the banking and court systems, and also regarding society's tolerance of the problem were also included. These questions strove to address various facets of how corruption affects both the public and private sectors. Scores were computed on a scale of 0-10 where zero was the highest possible score and ten was the lowest result.

8. World Economic Forum - Global Competitiveness Report 2008 and 2009 (WEF 2008 and WEF 2009), the CPI uses results from the following two questions posed to businesspeople through the Executive Opinion Survey.

   - In your country, how commonly do the following firms pay bribes to public servants or public officials? (domestic and foreign firms)
   - In your country, how common is it for firms to make undocumented extra payments or bribes connected with the following:
     a. Imports and exports?
     b. Public utilities (e.g. telephone or electricity)?
     c. Annual tax payments?
     d. Awarding of public contracts and licences?
     e. Obtaining favourable judicial decisions?

   Scores range from 1 to 7 with the extremities signifying that the respondent agrees with opposing opinions, one which supports the statement in question and one which rejects it.

Correlation of data

To illustrate the level of association among the different sources providing data for the CPI 2009 the table below presents the pair-wise correlation among sources[3]. Stars indicate that correlation is significant at the 1% level or better. As the table shows, on average assessments by different institutions tend to correlate well with each other. For some of these evaluations, the correlation holds even though the scores are provided by different type of respondents: country analysts v. businesspeople (eg. IMD2008(2009) and GI2009 or BTI2009 and PERC2008(2009)). There are however, some sources that do not correlate among each other. Lack of correlation that is not explained by either differences on country coverage (e.g.WEF2008(2009) and the WB2008) or by type of assessment (ADB2008 and EIU2009).

[3] Correlation coefficients refer to all countries assessed by the sources.

	EIU 2009	FH 2009	GI 2009	PERC 2008	PERC 2009	ADB 2008	AFDB 2008	BTI 2009	WB 2008	IMD 2008	IMD 2009	WEF 2008	WEF 2009
EIU 2009	1												
FH 2009	0.83*	1											
GI 2009	0.88*	0.89*	1										
PERC 2008	0.94*		0.89*	1									
PERC 2009	0.94*		0.89*	0.89*	1								
ADB 2008	-0.04	0.96	0.38		1	1							
AFDB 2008	0.69*		0.56*				1						
BTI 2009	0.76*	0.94*	0.78*	0.91*	0.78*	0.70*	0.79*	1					
WB 2008	0.68*	0.80	0.68*		0.17	0.74*	0.77*	0.79*	1				
IMD 2008	0.84*	0.94*	0.85*	0.96*	0.90*			0.67*		1			
IMD 2009	0.86*	0.75*	0.89*	0.96*	0.87*			0.70*		0.97*	1		
WEF 2008	0.83*	0.67*	0.89*	0.94*	0.94*	0.33	0.38	0.66*	0.00	0.95*	0.95*	1	
WEF 2009	0.82*	0.76*	0.89*	0.92*	0.91*	0.29	0.35	0.68*	-0.009	0.93*	0.95*	0.97*	1

C. HOW DO WE CALCULATE THE CPI?

The calculation of the index entails the following steps:

1. To enter the index, individual responses from business people opinion surveys are averaged by country. When more than one question is used, first the average score across questions is calculated for each respondent, and then the average score by country is calculated.

2. Because each of the sources uses its own scaling system, the data have to be standardised before entering into the index. The rescaling is carried out in two steps:

2.1 The first step consists of standardising the scores using "matching percentiles". This technique uses the ranks of countries reported by each individual source (but not the scores). The method allows all reported scores to be denominated in common (and thus comparable) units and within the same bounds, enabling proper aggregation remaining within the CPI bounds of 0-10 that is to say, to remain between 0 and 10. However, while it is a method useful for combining variables that have different distributions, there is some information loss in this technique.

Standardization is only required for data that have not been used in previous editions of the CPI. Data used in last year's index are already standardised and enter the calculation of the current edition with those standardised values.

The implementation of the matching percentile technique proceeds as follows:

Let us label the individual survey or assessment, Source Y.

2.1.1. Select a master list: This master list is the pool of values going from 0 to 10 to which rankings of Source Y will be matched. For the 2009 edition of the CPI, the master list is the TI CPI 2008. This represents a modification from the way the CPI was calculated in 2007 and 2008. For these two editions, the master list was set to be an "adjusted" version of the previous edition of the CPI[4].

2.1.2. Identify countries included in both the master list and assessed by source Y: Only information included in both is used in the standardization. Information on countries only

[4] For additional information please visit www.transparency.org/cpi

included either in the master list, or in source Y, is not used for the standardisation of the scores.

2.1.3. Rank countries according to their scores in source Y: Countries identified in the previous step are ranked according to their score in source Y, starting from the country with the lowest perceived level of corruption to the country with the highest perceived level of corruption.

2.1.4. For each country, the only information kept from source Y, is their position in the ranking.

2.1.5. Going back to the master list, scores for the common set of countries identified in step 2.1.1 are sorted from the number representing the lowest perceived level of corruption, to the number representing the highest perceived level of corruption.

2.1.6. The information kept from the master list is scores and rankings. Scores in the master list are not linked to countries anymore but to positions in the ranking.

2.1.7. Scores from the master list are matched to the countries by their respective rankings. The country ranking first in source Y (lowest perceived level of corruption) gets assigned the highest score in the master list (lowest perceived level of corruption). The country ranking second in source Y (second lowest perceived level of corruption) gets assigned the second score in the master list (second lowest perceived level of corruption) and so on.

2.1.8. The matching-percentile technique is not designed to handle ties either on the ranking given by sources or on the scores from the master list. To solve this problem the following technique is used:

a. If two countries are ranked in the same position by source Y but the scores in the master list are different, they will both get assigned the simple average of their two scores.
b. If two countries are ranked differently by source Y but the scores in the master list are the same, both countries will get a new score calculated through an interpolation that takes into consideration the scores they receive from source Y, and the scores in both the master list, and source Y from their upper and lower neighbours (See Appendix 2 for more detailed information).

2.2. The second step of the rescaling process consists of applying a beta-transformation to the matched scores obtained in 2.1. The beta-transformation increases the standard deviation of these values to counter the statistical caveat by which the matching percentiles technique results in a smaller standard deviation every year. The transformation uses the *Cumulative Distribution Function* of a variable that follows a beta-distribution. The alpha and beta parameters are set such that the mean and standard deviation of the index are the same as the mean and standard deviation of the master list. In the case of the CPI 2009, we set a=1.124 and ß=1.142[5].

3. The final CPI score for a country is the average of these transformed values for all sources where it appears. Only countries assessed by 3 or more sources are included in the index.

D. CONFIDENCE INTERVALS

The confidence intervals indicate the reliability of the CPI scores. They provide the range in which the true value of the estimated CPI score is plausibly thought to fall. The width of the confidence interval provides information on the level of uncertainty of the true value of the score. The wider it is, the less precise the estimated score is. In general, we can say that we are 90% confident that the true value of a corruption perception score lies within a constructed 90% confidence interval corrected on an appropriate manner.

Intervals are built for the CPI 2009 is s follows: Each source provides an assessment of corruption perceptions in a given country in a given year, and each source is assumed to be on average,

[5] To find these parameters an algorithm was written for Transparency International by Piero Stanig from the London School of Economics.

correctly capturing the underlying phenomenon (it provides an "unbiased" estimate). However, each source is a *noisy* measure of the phenomenon; otherwise they would all agree on the assessment of a given country in a given year. We can exploit the variation (disagreement) across sources to estimate how precise they are, and therefore how precise the estimate of the index is.

Each source could have provided a slightly different value, just because of random *noise*. The approach that was adopted to calculate the confidence intervals is bootstrap. This method exploits the variation across sources in the evaluation of a given country to create alternative scenarios, in which slightly different values are provided by each source for the same country.

For each country, 10,000 samples were drawn with replacement from the observed values of the individual sources. In other words, alternative configurations of values of the individual sources were built, starting from the set of values that were actually observed in the data.

For example, imagine that country A is evaluated in the following way by 4 sources:
Source X: 7.8
Source W: 7.3
Source Y: 8.1
Source Z: 7.1

A resample for country A could be
7.8
7.8
8.1
7.3

In other words, a "reshuffling" of the observed values can be performed, possibly recycling the same value more than once. Hence we say that we "sample with replacement": a value is picked and then "put back in the urn", so that it might be picked more than once.

On each of these samples, the index was computed. We obtained 10,000 replications of the index. The 90% confidence interval is the range in which 90% of the replications lie. In 5% of the replications, the index was lower than the lower boundary of the confidence interval we report. In 5% of the replications, the index was higher than the upper boundary of the reported confidence interval. But in 90% of the replications, the index lay in the interval we report.

Overconfidence of Intervals

The properties of the method used to compute confidence intervals were assessed using MonteCarlo experiments. MonteCarlo experiments are a general approach used to assess the statistical properties of a method, by repeatedly applying the method itself to artificial data. The artificial data are generated by a known process, chosen by the analyst to be similar in nature to the process that the real data are assumed to be generated by. Then, the analyst can check whether the method gave the correct answer (which is known to the analyst, because the data is artificial).

In this specific instance, data for a hypothetical country were generated, with a known amount of noise in each of the sources. Then, the bootstrap method was applied to the artificial data and the confidence intervals were computed. We then assessed if the intervals were correctly "fishing up" the true value (again, known to the analyst because the data is artificial).

The results of the MonteCarlo experiments point to the fact that, in particular when there are very few sources for a given country, the intervals built with the method we adopted are overconfident. In other words, the intervals might overstate the precision of the index. Users should keep in that the confidence intervals--- especially for those countries evaluated just by three or four sources--- might not fully capture the underlying uncertainty in the value of the index.

The CPI 2009 table also displays the maximum and minim scores given in the surveys or assessments or surveys to each country.

Appendix 1. Matching Percentiles: Dealing with ties.

Master list	Score by original survey/assessment	Matched score
m_1	y_1	z_1
m_2	y_2	z_2
m_3	y_3	z_3
m_4	y_4	z_4

Possible scenarios:

(1) Standard case: $m_1>m_2>m_3>m_4$ and $y_1>y_2>y_3>y_4$.
Matching percentiles imply: Set $z_i=m_i$ where i=1,2,3,4

(2) Tie in scores by original survey or assessment: $m_1>m_2>m_3>m_4$ and $y_1>y_2=y_3>y_4$.
Matched scores set by: $z_1=m_1$, $z_2=z_3=(m_2+m_3)/2$, $z_4=m_4$

(3) Tie in master list: $m_1>m_2=m_3>m_4$

Matched scores set by:

$z_1 = m_1$
$z_2 = ((m_1- m_4)/(y_1- y_4))*(y_2-y_4)+m_4$
$z_3 = ((m_1- m_4)/(y_1- y_4))*(y_3-y_4)+m_4$
$z_4 = m_4$

When ties occur at the bottom or the upper tails of the master list, an extrapolation is anchored to the highest/lowest values the master list and relevant source could attain.

Appendix 2: Sources for the TI Corruption Perceptions Index (CPI) 2009

Number	1	2	3
Abbreviation	ADB	AFDB	BTI
Source	Asian Development Bank	African Development Bank	Bertelsmann Foundation
Name	Country Performance Assessment Exercise 2008	Country Policy and Institutional Assessments 2008	Bertelsmann Transformation Index 2010
Compiled / published	2008/2009	2008/2009	2009
Internet	http://www.adb.org/Documents/Reports/Country-Performance-Assessment-Exercise/default.asp	http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/AfDB_2008_Governance.xls	http://www.bertelsmann-transformation-index.de/11.0.html?&L=1
Who was surveyed?	Country teams, experts inside and outside the bank	Country teams, experts inside and outside the bank	Network of local correspondents and experts inside and outside the organization
Subject asked	Transparency, Accountability, and Corruption in the Public Sector" is especially relevant, as explained by the guidelines	Corruption, conflicts of interest, diversion of funds as well as anti-corruption efforts and achievements	The government's capacity to punish and contain corruption
Number of replies	Not applicable	Not applicable	Not applicable
Coverage	27 Asian countries	53 countries	128 less developed and transition countries

Number	4	5
Abbreviation	EIU	FH
Source	Economist Intelligence Unit	Freedom House
Name	Country Risk Service and Country Forecast	Nations in Transit
Compiled / published	2009	2009
Internet	www.eiu.com	http://www.freedomhouse.hu/index.php?option=com_content&view=article&id=242:nations-in-transit-2009&catid=30&Itemid=92
Who was surveyed?	Expert staff assessment	Assessment by experts originating or resident in the respective country.
Subject asked	The misuse of public office for private (or political party) gain	Extent of corruption as practiced in governments, as perceived by the public and as reported in the media, as well as the implementation of anticorruption initiatives
Number of replies	Not applicable	Not applicable
Coverage	158 countries	29 countries/territories

Number	6	7	8
Abbreviation	GI	IMD	
Source	Global Insight	IMD International, Switzerland, World Competitiveness Center	
Name	Country Risk Ratings	IMD World Competitiveness Yearbook	
Compiled / published	2009	2008	2009
Internet	http://www.globalinsight.com	www.imd.ch/wcc	
Who was surveyed?	Expert staff assessment	Executives in top and middle management; domestic and international companies	
Subject asked	The likelihood of encountering corrupt officials, ranging from petty bureaucratic corruption to grand political corruption	Category Institutional Framework - State Efficiency: "Bribing and corruption exist/do not exist"	
Number of replies	Not applicable	More than 4,000 executives	
Coverage	203 countries	55 countries	57 countries

Number	9	10
Abbreviation	PERC	
Source	Political & Economic Risk Consultancy	
Name	Asian Intelligence Newsletter	
Compiled / published	2008	2009
Internet	www.asiarisk.com/	
Who was surveyed?	Expatriate business executives	
Subject asked	How serious do you consider the problem of corruption to be in the public sector?	
Number of replies	1,400	1,750
Coverage	15 countries	16 countries

Number	11	12	13
Abbreviation	WB	WEF	
Source	World Bank (IDA and IBRD)	World Economic Forum	
Name	Country Policy and Institutional Assessment 2008	Global Competitiveness Report	
Compiled / published	2008-09 / 2009	2008-09	2009-10
Internet	http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:21359477~menuPK:2626968~pagePK:51236175~piPK:437394~theSitePK:73154,00.html	www.weforum.org	
Who was surveyed?	Country teams, experts inside and outside the bank	Senior business leaders; domestic and international companies	
Subject asked	Corruption, conflicts of interest, diversion of funds as well as anti-corruption efforts and achievements	Undocumented extra payments or bribes connected with 1) exports and imports, 2) public utilities, 3) tax collection, 4) public contracts and 5) judicial decisions are common/never occur	
Number of replies	Not applicable	12,297	Over 12,614
Coverage	75 countries (eligible for IDA funding)	134 countries	133 countries